CONTENTS

NUMBER 1

A. Ş. Tunçbilek and I. A. Kansu	1	The influence of rearing medium on the irradiation sensitivity of eggs and larvae of the flour beetle, *Tribolium confusum* J. du Val
N. O. Oigiangbe and A. O. Onigbinde	7	The association between some physico-chemical characteristics and susceptibility of cowpea (*Vigna unguiculata* (L.) walp) to *Callosobruchus maculatus* (F.)
A. Boughton and H. Y. Fadamiro	13	Effect of age and sex on the response of walking *Prostephanus truncatus* (Horn) (Coleoptera: Bostrichidae) to its male-produced aggregation pheromone
S. Shu, W. L. Koepnick, G. N. Mbata, A. Cork and S. B. Ramaswamy	21	Sex pheromone production in *Callosobruchus maculatus* (Coleoptera: Bruchidae): Electroantennographic and behavioral responses
R. J. Hodges, R. Robinson and D. R. Hall	31	Quinone contamination of dehusked rice by *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae)
D. Seck, G. Lognay, E. Haubruge, M. Marlier and C. Gaspar	39	Alternative protection of cowpea seeds against *Callosobruchus maculatus* (F.) (Coleoptera: Bruchidae) using hermetic storage alone or in combination with *Boscia senegalensis* (Pers.) Lam *ex* Poir
G. N. Mbata and C. Reichmuth	45	The comparative effectiveness of different modified atmospheres for the disinfestation of bambarra groundnuts, *Vigna subterranea* (L.) verde, infested by *Callosobruchus subinnotatus* (Pic) (Coleoptera: Bruchidae)
S. H. Guzmán Maldonado, A. Marín-Jarillo, J. Z. Castellanos, E. González de Mejía and J. A. Acosta-Gallegosc	53	Relationship between physical and chemical characteristics and susceptibility to *Zabrotes subfasciatus* (Boh.) (Coleoptera: Bruchidae) and *Acanthoscelides obtectus* (Say) in common bean (*Phaseolus vulgaris* L.) varieties
E. Watson and G. Barson	59	A laboratory assessment of the behavioural responses of three strains of *Oryzaephilus surinamensis* (L.) (Coleoptera: silvanidae) to three insecticides and the insect repellent *N,N*-diethyl-*m*-toluamide
V. Veer, B. K. Negi and K. M. Rao	69	Dermestid beetles and some other insect pests associated with stored silkworm cocoons in India, including a world list of dermestid species found attacking this commodity
J. Helbig and F. A. Schulz	91	The potential of the predator *Teretriosoma nigrescens* lewis (Coleoptera: Histeridae) for the control of *Prostephanus truncatus* (Horn) (Coleoptera: Bostrichidae) on dried cassava chips and cassava wood
R. J. Hodges and Surendro	97	Detection of controlled atmosphere changes in CO_2-flushed sealed enclosures for pest and quality management of bagged milled rice

NUMBER 2

K. Adane, D. Moore and S. A. Archer	105	Preliminary studies on the use of *Beauveria bassiana* to control *Sitophilus zeamais* (Coleoptera: Curculionidae) in the laboratory
T. A. Jacob	115	The effect of constant temperature and humidity on the development, longevity and productivity of *Ahasverus advena* (Waltl.) (Coleoptera: Silvanidae)
T. G. Bowditch and J. L. Madden	123	Spatial and temporal distribution of *Ephestia cautella* (Walker) (Lepidoptera: Pyralidae) in a confectionery factory: causal factors and management implications
G. A. Herron, A. D. Clift, G. G. White and H. G. Greening	131	Relationships between insecticide use, grain hygiene and insecticide resistance in *Oryzaephilus surinamensis* (L.) (Coleoptera: Silvanidae) on grain-producing farms
K. S. Ahmed	137	Studies on the ectoparasitoid, *Anisopteromalus calandrae* How. (Hymenoptera: Pteromalidae) as a biocontrol agent against the lesser grain borer, *Rhyzopertha dominica* (Fab.) in Saudi Arabia
S. J. Beckett, D. E. Evans and R. Morton	141	A comparison of the demographies of pesticide susceptible and resistant strains of *Oryzaephilus surinamensis* (L.) (Coleoptera: Silvanidae) on kibbled wheat
P. Williams, P. J. Nickson, M. F. Braby and A. P. Henderson	153	Phosphine fumigations of wheat in 2500 m^3 steel bins without recirculation facilities
H. Y. Fadamiro, T. D. Wyatt and D. R. Hall	163	Behavioural response of *Prostephanus truncatus* (Horn) (Coleoptera: Bostrichidae) to the individual components of its pheromone in a flight tunnel: discrimination between two odour sources
J. L. Smith, A. Cork, D. R. Hall and R. J. Hodges	171	Investigation of the effect of female larger grain borer, *Prostephanus truncatus* (Horn) (Coleoptera: Bostrichidae), and their residues on the production of aggregation pheromone by males
T. Prem Kumar, S. N. Moorthy, C. Balagopalan, C. A. Jayaprakas and P. Rajamma	183	Quality changes in market cassava chips infested by insects

NUMBER 3

S. T. Conyers and C. H. Bell	187	The effect on the mortality of adult *Cryptolestes ferrugineus* (Stephens) (Coleoptera: Cucujidae), *Sitophilus granarius* (L.) (Coleoptera: Curculionidae) and *Oryzaephilus surinamensis* (L.) (Coleoptera: Silvanidae) of interrupting low oxygen exposures with periods of elevated oxygen
M. A. J. Al-Izzi and S. K. Al-Maliky	195	Action of tannic acid on consumption and utilisation of food by *Ectomyelois ceratoniae* Zeller (Lepidoptera: Pyralidae)
T. K. Dongre, S. E. Pawar, R. G. Thakare and M. R. Harwalkar	201	Identification of resistant sources to cowpea weevil (*Callosobruchus maculatus* (F.)) in *Vigna* sp. and inheritance of their resistance in black gram (*Vigna mungo* var. *mungo*)

N. Soltani, N. Soltani-Mazouni, B. Quennedey and J. Delachambre 205 Protein synthesis in developing ovaries of mealworm under *in vivo* and *in vitro* conditions: effects of diflubenzuron

J. Guntrip, R. M. Sibly and R. H. Smith 213 A phenotypic and genetic comparison of egg to adult life-history traits between and within two strains of the larger grain borer, *Prostephanus truncatus* (Horn) (Coleoptera: Bostrichidae)

E. J. Donahaye, S. Navarro, M. Rindner and A. Azrieli 225 The combined influence of temperature and modified atmospheres on *Tribolium castaneum* (Herbst) (Coleoptera: Tenebrionidae)

H. Y. Fadamiro 233 Flight and landing behaviour of *Prostephanus truncatus* (Horn) (Coleoptera: Bostrichidae) in relation to wind speed

N. Shayesteh and N. N. Barthakur 239 Mortality and behaviour of two stored-product insect species during microwave irradiation

G. J. Daglish, M. Eelkema and L. M. Harrison 247 Control of *Sitophilus oryzae* (L.) (Coleoptera: Curculionidae) in paddy rice using chlorpyrifos-methyl or fenitrothion in combination with several other protectants

D. E. Maier, W. H. Adams, J. E. Throne and L. J. Mason 255 Temperature management of the maize weevil, *Sitophilus zeamais* Motsch. (Coleoptera: Curculionidae), in three locations in the United States

R. Plarre 275 Three-dimensional distribution of *Sitophilus granarius* (L.) (Coleoptera: Curculionidae) in wheat influenced by the synthetic aggregation pheromone

H. L. Gilburt and M. Anderson 285 The spectral efficiency of the eye of *Ephestia cautella* (Walker) (Lepidoptera: Pyralidae)

NUMBER 4

Review

Frank H. Arthur 293 Grain protectants: current status and prospects for the future

General Papers

R. E. Rij, L. S. Fong and L. H. Aung 303 Sorption of chloroanisole vapors by raisin packaging material

Barbara J. Tigar and David B. Pinniger 307 A comparison of the toxicity of pirimiphos-methyl and malathion to *Typhaea stercorea* (L.) when applied to stored maize

P. Trematerra, F. Fontana and M. Mancini 315 Analysis of development rates of *Sitophilus oryzae* (L.) in five cereals of the genus *Triticum*

T: I. Ofuya and P. F. Credland 323 The ability of *Bruchidius atrolineatus* (Pic) (Coleoptera: Bruchidae) to infest and damage seeds of different tropical legumes

Iben Haasum and Per Væggemose Nielsen 329 Preincubation of *Penicillium commune* conidia under modified atmosphere conditions: influence on growth potential as determined by an impedimetric method

Modhumitha Ghosh and Kandasamy Ulaganathan 339 Mature seeds of *Sorghum* contain proteins toxic to aflatoxin-producing *Aspergillus flavus*

Sudesh Jood, A. C. Kapoor and Ram Singh 345 Evaluation of some plant products against *Trogoderma granarium* everts in sorghum and their effects on nutritional composition and organoleptic characteristics

AUTHOR INDEX

Acosta-Gallegosc J. A., 53
Adams W. H., 255
Adane K., 105
Ahmed K. S., 137
Al-Izzi M. A. J., 195
Al-Maliky S. K., 195
Anderson M., 285
Archer S. A., 105
Arthur F. H., 293
Aung L. H., 303
Azrieli A., 225

Balagopalan C., 183
Barson G., 59
Barthakur N. N., 239
Beckett S. J., 141
Bell C. H., 187
Boughton A., 13
Bowditch T. G., 123
Braby M. F., 153

Castellanous J. Z., 53
Clift A. D., 131
Conyers S. T., 187
Cork A., 21, 171
Credland P. F., 323

Daglish G. J., 247
Delachambre J., 205
Donahaye E. J., 225
Dongre T. K., 201

Eelkema M., 247
Evans D. E., 141

Fadamiro H. Y., 13, 163, 233
Fong L. S., 303
Fontana F., 315

Gaspar C., 39
Ghosh M., 339
Gilburt H. L., 285
Greening H. G., 131
Guntrip J., 213
Guzman Maldonaldo S. H., 53

Haasum I., 329
Hall D. R., 31, 163, 171
Harrison L. M., 247
Harwalkar M. R., 201
Haubruge E., 39
Helbig J., 91
Henderson A. P., 153
Herron G. A., 131
Hodges R. H., 31
Hodges R. J., 97, 171

Inigbinde A. O., 7

Jacob T. A., 115
Jayaprakas C. A., 183
Jood S., 345

Kansu I. A., 1
Kapoor A. C., 345
Koepnick W. L., 21
Kumar T. P., 183

Lognay G., 39

Madden J. L., 123
Maier D. E., 255
Mancini M., 315
Marín-Jarillo A., 53
Marlier M., 39
Mason L. J., 255
Mbata G. N., 21, 45
de Mejia E. G., 53
Moore D., 105
Moorthy S. N., 183
Morton R., 141

Navarro S., 225
Negi B. K., 69
Nickson P. J., 153
Nielsen P. V., 329
Ofuya T. I., 323
Oigiangbe N. O., 7

Pawar S. E., 201
Pinniger D. B., 307
Plarre R., 275

Quennedey B., 205

Rajamma P., 183
Ramaswamy S. B., 21
Rao K. M., 69
Reichmuth C., 45
Rij R. E., 303
Rindner M., 225
Robinson R., 31

Schulz F. A., 91
Seck D., 39
Shayesteh N., 239
Shu S., 21
Sibly R. M., 213
Singh R., 345
Smith J. L., 171
Smith R. H., 213
Soltani N., 205
Soltani-Mazouni N., 205
Surendro, 97

Thakare R. G., 201
Throne J. E., 255
Tigar B. J., 307
Trematerra P., 315
Tunçbilek A. Ş., 1

Ulaganathan K., 339

Veer V., 69

Watson E., 59
White G. G., 131
Williams P., 153
Wyatt T. D., 163

Typeset in Great Britain by BPC Digital Techset Ltd, Exeter. Printed by BPC Wheatons Ltd, Exeter